

# MICROELECTRONIC SPRING WITH ADDITIONAL PROTRUDING MEMBER

## ABSTRACT OF THE DISCLOSURE

Various structural features for modifying the performance characteristics of cantilevered microelectronic spring structures are disclosed. Generally, the features comprise a protruding member mounted between a supporting substrate and the transverse cantilever beam of a microelectronic spring structure, at a distance spaced apart from the supporting structure from which the beam is cantilevered. The protruding member may be equal to the clearance under the beam, less than the clearance under the beam, or adjustable in height; and may be attached or mounted to either the beam or the substrate. In an embodiment of the invention, the protruding member is substantially rigid and incompressible, and shorter than the clearance under the beam. In an alternative embodiment, the protruding member is substantially "soft" and compressible. Embodiments wherein the protruding member is comprised of a simple structural component, such as a beam, peg, cushion, or post are disclosed, as are an embodiment wherein the protruding member comprises of a multi-component assembly, such as a truss or mechanical actuator. Additionally, embodiments wherein the protruding member comprises an electronic device attached to both the substrate and the beam are disclosed. Further embodiments wherein the protruding member comprises an adjustable pressure device are also disclosed.